MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019/2020

TIS3351 – ADVANCED DATABASE
(All sections / Groups)

3 MAR 2020
2.30 p.m. – 4.30 p.m.
(2 Hours)

Question	Mark
1	
2	
3	
4	
Total	

INSTRUCTIONS TO STUDENT

1. This question paper consists of 6 printed pages (including cover page).

2. Attempt all questions. The distribution of the marks for each question is given.

3. Write your answers in the answer booklet provided.

QUESTION 1 [9 marks]

(a) Given two tables below, Tab1 and Tab2, what is the output of each query statement from statement (i) to statement (iv).

Tab1

C1	C2
A	11
B	12
C	13

Tab2

CX	CY
A	21
C	22
D	23

(i)

```
SELECT *
FROM Tab1, Tab2;                                                    [1]
```

(ii)

```
SELECT *
FROM Tab1 a INNER JOIN Tab2 b
ON a.c1 = b.cx;                                                     [1]
```

(iii)

```
SELECT *
FROM Tab1 LEFT OUTER JOIN Tab2
ON Tab1.c1 = Tab2.cx;                                               [2]
```

(iv)

```
SELECT *
FROM Tab1 FULL OUTER JOIN Tab2
ON Tab1.c1 = Tab2.cx;                                               [2]
```

(b) Draw an example of a star schema with at least two dimension tables.

[3]

Continued...

QUESTION 2 [10 marks]

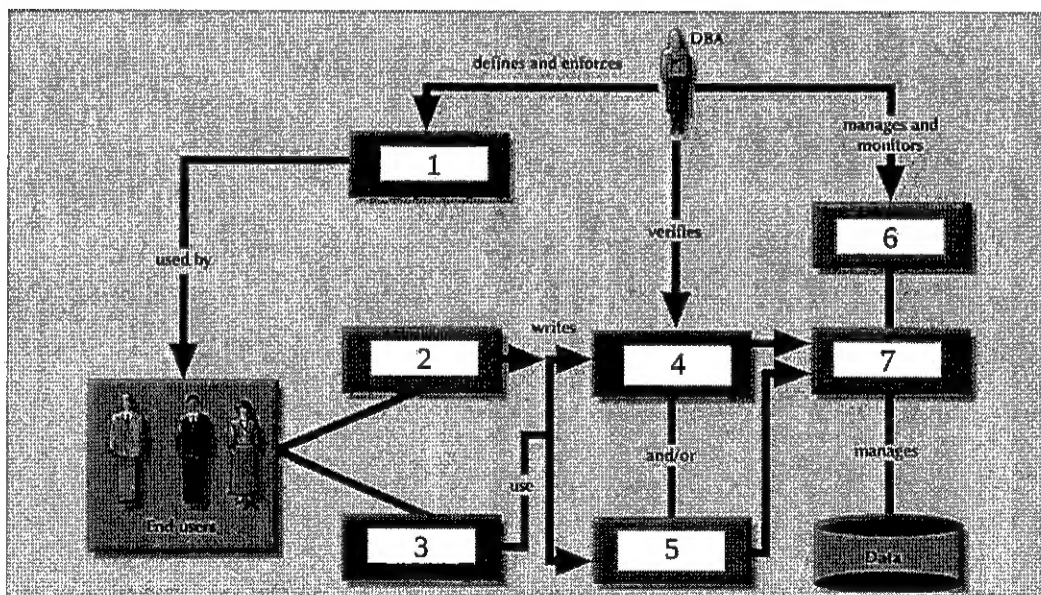(a) What is a transaction log, and what is its function?

[4]

(b) Below are a diagram of DBA activities and a diagram of a business intelligence framework. Fill in each blank (labelled 1 to 12) in the diagrams by selecting a word from a word list. Each word can be selected only once. Write your answer in the answer booklet.
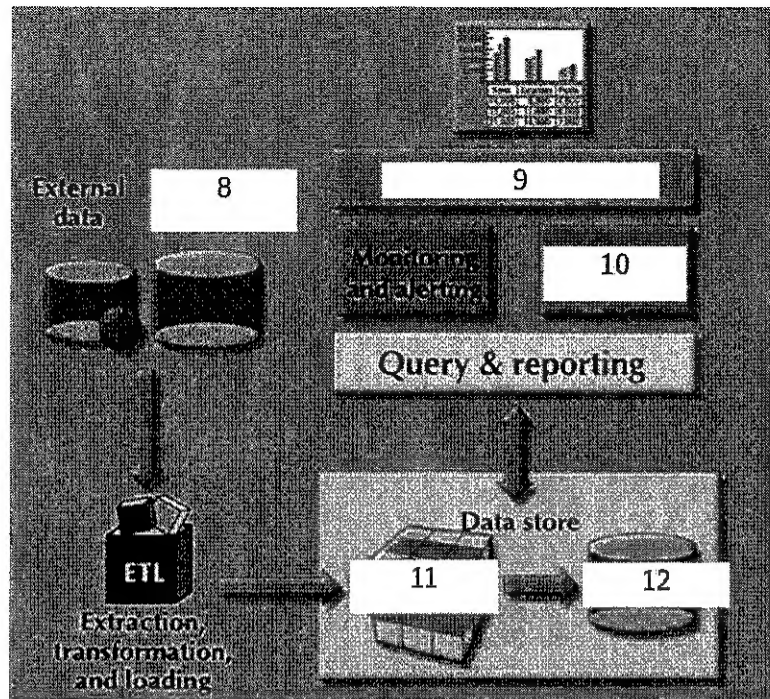
Word list :

Procedures and Standards	Operational data	DBMS interface	DBA interface	Data Visualization
Knowledge	Programmer	Data warehouse	Distributed DBMS	DBMS
Transaction	Backup	Recovery	Information	XQuery
Deadlock	Data analytics	Application pro-grams	Data mart	Managers and clerks

[6]

DBA Activities

Business Intelligence Framework

QUESTION 3 [10 marks]

(a) What are the traditional 3 Vs of Big Data? List and briefly describe each of them.

[3]

(b) Referring to the XML document given below, what is the output of each of the XPath predicates (i) to (v)?

```
<dept>
    <bldg>101</bldg>
    <employee>
        <id>901</id>
        <name>John Doe</name>
        <phone>408 555 1212</phone>
        <office>344</office>
    </employee>
    <employee>
        <id>902</id>
        <name>Peter Pan</name>
        <phone>408 555 9918</phone>
        <office>216</office>
    </employee>
</dept>
```

[5]

(i) `/dept/employee/name`

(ii) `/dept/employee/name/text()`

(iii) `/dept/employee/*/text()`

(iv) `/dept//phone`

(v) `//employee[office="344" OR office="216"]/id`

(c) What is the difference between the CLOB data type and BLOB data type in IBM DB2?

[2]

QUESTION 4 [11 marks]

(a) Five desirable DDBMS transparency features are
i) Distribution transparency
ii) Transaction transparency
iii) Failure transparency
iv) Performance transparency
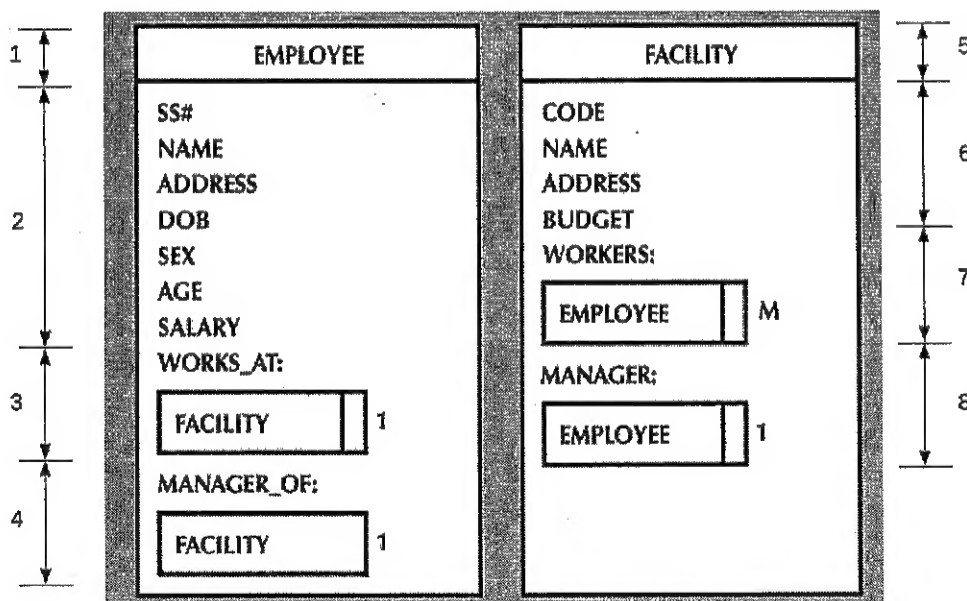v) Heterogeneity transparency
Explain each of them.

[5]

(b) Explain the meaning of each part (1 to 8) of the class diagram below showing two interobject relationships in an object-oriented data model. Part 1 and part 5 have been answered for you as examples of the expected answers.

Part 1:
The name of the class which is EMPLOYEE
Part 5:
The name of the class which is FACILITY

[6]

End of Page